In re Application of: Eran FINE
Serial No.: 10/538,173
Filed: August 7, 2006
Office Action Mailing Date: August 24, 2007

Examiner: Omar R. Rojas
Group Art Unit: 2874
Attorney Docket: 30063

## REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 90-124 are in this Application. Claims 1-89 were cancelled in preliminary amendments. Claims 90-124 have been rejected. Claims 112-113, 122 and 124 have been canceled herewith. Claims 90, 114, 119, 121 and 123 have been amended. New claims 125 and 126 have been added.

### *Amendments To The Drawings*

The Examiner requests new corrected drawings because Figures 11-13 appear to be photographs and/or photocopies of photographs and, thus, are not permitted in utility and design patent applications. Figure 11 has been replaced by a drawing thereby complying with the Examiner's request with respect thereto.

Regarding Figures 12 and 13, Applicant submits that since these Figures illustrate illumination effects, is would be more appropriate to show such effects by means of photography. Permission to keep Figures 12 and 13 as photographs is respectfully requested.

### *Specification*

The specification has been reviewed by the Applicant and no errors have been found. An error in the dependency of claim 114 has been corrected as further detailed hereinbelow.

### *Amendments to the Claims*

Claims 90 and 123 have been amended to include the limitation that the flexible material is shaped as a sheet and has a plurality of particles distributed in the flexible material in an increasing concentration such that a first portion of the light is scattered by the particles and emitted through at least a portion of a surface of the sheet

to provide a light gradient emanating from the surface. The amendment to claim 90 and 123 finds support in Figures 1 and 3b and page 15 lines 26-28 of the specification as filed. Amended claims 90 and 123 are not narrower than previously presented claims 90 and 123.

Claim 121 has been amended to include the limitations that the flexible material is shaped as a sheet and that a change in ambient temperature, moisture and/or electromagnetic field results in a change in a color and/or intensity of light emitted from the surface of the sheet. The amendment to claim 121 finds support in page 19 lines 1-6 of the specification as filed. Amended claim 121 is not narrower than previously presented claims 121.

The dependency of claims 114 and 119 was amended to establish antecedent basis to the features recited therein.

New claim 125 includes all the limitations of previously presented claims 90, 103 and 108. No substantial amendment was introduced into claim 125, other than rewriting previously presented claim 108 in an independent form. In this resects, the undersigned notes that it would be inappropriate to make the next office action final (MPEP §706.07).

New claim 126 includes the limitation that the flexible material comprises at least one component designed and configured to allow the emission of the light through the predetermined pattern, such that variations in a color of the light results in variations in the predetermined pattern. Support for the subject matter on new claim 126 is found in Figure 4b and page 18 lines 26-30 of the specification as filed.

***35 U.S.C. § 102 Rejections - Muto et al.***

The Examiner rejects claims 90-107, 109-113 and 122-124 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,278,106 to Muto et al. The Examiner identifies in Figure 5 of Muto *et al.* a flexible material in which a first

portion of light is emitted through at least a portion of the surface, and a second portion of the light is emitted through the end.

Applicant respectfully traverses the Examiner's rejection and states that there is no prima facie case of anticipation regarding amended claims 90 and 123, because Muto *et al.* lack at least one limitation of these claims. Claims 122 and 124 are now cancelled, thereby rendering moot the Examiner's rejection with respect thereto.

Muto *et al.* teach a fiber optic sensor which includes a fiber optic core and a fiber optic clad adjacent to and concentrically surrounding the core. When the clad is not exposed to a substance, its index of refraction is higher than or equals the index of refraction of the core. Once the clad is exposed to a substance to be detected, its index decreases to a value which is less than the index of refraction of the core. This effects a change in light leakage mode to wave guide mode of the sensor. Changes in light intensity output from the sensor is measured over time, and correlated to the substance to be detected.

Muto *et al.* fail to teach or imply a flexible material shaped as a sheet, because Muto *et al.* is directed to a clad which is concentrically surrounding the core. Muto *et al.* also fail to teach or imply a flexible material having a plurality of particles distributed therein, because the leakage of light out of the optical fiber is by means of change in the refractive index of the clad and not by means of scattering. Muto *et al.* certainly do not teach or imply an increasing concentration of the particles since Muto *et al.* do not even hint at any particles distributed in their optical fiber. Additionally, Muto *et al.* do not teach or imply a light gradient emanating from the surface of the sheet, because Muto *et al.* are directed to detection of substance existence hence teach binary operation (either leakage mode or light guide mode) of the sensor.

It is therefore submitted that claims 90 and 123 are patentable over Muto *et al.* because Muto *et al.* lack at least four limitations of these claims, all the more so the combination of limitations recited in these claims.

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Dependent claims 91-111 and 114-120 are patentable at least by virtue of their direct or indirect dependency from claim 90.

***35 U.S.C. § 102 Rejections - Alacron***

The Examiner rejects claims 90-105, 108-110, 112-114, 116, 117 and 121-124 under 35 U.S.C. § 102(b) as being anticipated by Alarcon. It is noted that the U.S. Patent Number of Alacron is 5,718,666 and not as recited by the Examiner on page 4 of the Office Action.

The Examiner refers to column 4 lines 19-37 and Figure 2 of Alacron and identifies all the features of claims 90 and 123 therein. The examiner appears to identify Alcaron's voids 24 as one layer and Alcaron's material 21 as the other layer recited in the claims. The Examiner also refers to Alcaron's Figure 3 stating that the voids form a pattern on the material 21. The Examiner also states that voids 24 can serve as the claimed additional component or diffractive optical element in the form of air, and that the air in the voids inherently comprises some form of particles impurities due to pollution.

The Examiner refers to Figure 1 of Alacron and identifies the optical coupler of claim 121 therein.

Applicant respectfully traverses the Examiner's rejection and states that there is no prima facie case of anticipation regarding amended claims 90, 121 and 123, because Alacron lacks at least one limitation of these claims. Claims 112, 113, 122 and 124 are now cancelled, thereby rendering moot the Examiner's rejection with respect thereto.

Alacron teaches a bougie made of an elastomeric light-conducting material wherein a light beam from a light source is transmitting axially therethrough traveling toward the distal tip of the bougie. The bougie distal end portion includes a transverse cylindrical void which passes through and through the distal end portion of the bougie (*i.e.*, the void length equals to the outer diameter of the distal end portion). When the

light beam encounters the cylindrical void, a portion of the light beam is caused to reflect laterally, and to exit the bougie in a radial direction.

In regard to claims 90 and 123, Alacron fails to teach or imply a flexible material shaped as a sheet, because a bougie cannot be considered a sheet. Alacron also fails to teach or imply a flexible material having a plurality of particles distributed in an increasing concentration.

Applicant respectfully disagrees with the Examiner's interpretation that the air in the voids inherently includes particles.

Firstly, air does not necessarily include particles, even when polluted, since pollution can be in many non-particulated forms (such as the form of disperse molecules). Therefore the existence of particles in the air is not inherent to the voids.

Dependent claims 91-111 and 114-120 are patentable at least by virtue of their direct or indirect dependency from claim 90.

Secondly, even assuming arguendo that the voids include particles, such particles are not inherently light scatterers. In fact, Alacron specifically excludes any light scattering centers in the polymeric (see abstract line 17).

Thirdly, even assuming arguendo that the voids include particles and that the particles in the voids are light scatterers, they are certainly not in an increasing concentration since uncontrolled pollution is distributed randomly or uniformly and by no means can be considered as having any concentration profile other than random or uniform.

Alacron also does not teach or imply a light gradient emanating from the surface of the sheet, because Alacron is completely silent regarding any profile of the emitted light.

It is therefore submitted that claims 90 and 123 are patentable over Alacron because Alacron lack at least four limitations of these claims, all the more so the combination of limitations recited in these claims.

In regard to claim 121, Alacron fails to teach or imply a flexible material shaped as a sheet. Alacron also fails to teach or imply a flexible material which comprises one or more components designed and configured to allow emission of the light through at least a portion of the surface wherein the component(s) is sensitive to temperature, moisture, and/or electromagnetic field such that a change in ambient temperature, moisture and/or electromagnetic field results in a change in a color or intensity of light emitted from the surface.

It is therefore submitted that claim 121 is patentable over Alacron because Alacron lacks at least two limitations of claim 121, either singly or in combination.

***35 U.S.C. § 102 Rejections - Grubsky et al.***

The Examiner rejects claims 90-94, 101-105, 107-110 and 112-124 under 35 U.S.C. § 102(e) as being anticipated by Grubsky *et al.* U.S. Patent No. 6,850,665. The Examiner identifies in Figure 5 of Grubsky *et al.* a flexible material in which a first portion of light is emitted through at least a portion of the surface, and a second portion of the light is emitted through the end.

Applicant respectfully traverses the Examiner's rejection and states that there is no prima facie case of anticipation regarding amended claims 90, 121 and 123, because Grubsky *et al.* lack at least one limitation of these claims. Claims 112, 113, 122 and 124 are now cancelled, thereby rendering moot the Examiner's rejection with respect thereto.

Grubsky *et al.* teach a wavelength-selective optical coupler which uses two or more gratings in two or more optical fibers to transfer light at a desired and selected wavelength from the core of one optical fiber into the core of another optical fiber through a coupling region. Grubsky *et al.* teach elimination of temperature dependence of the resonance wavelength of the gratings.

Grubsky *et al.* fail to teach a flexible material shaped as a sheet. Grubsky *et al.* also fail to teach or imply a flexible material having a plurality of particles distributed

therein, because the light coupling thought by Grubsky *et al.* is solely via gratings as opposed to scattering off particles. Grubsky *et al.* certainly do not teach or imply an increasing concentration of the particles since Grubsky *et al.* do not even hint at any particles distributed in their optical fibers. Additionally, Grubsky *et al.* do not teach or imply a light gradient emanating from the surface of the sheet, because Grubsky *et al.* are directed to local coupling between two optical fibers.

It is therefore submitted that claims 90 and 123 are patentable over Grubsky *et al.* because Grubsky *et al.* lack at least four limitations of these claims, all the more so the combination of limitations recited in these claims.

Dependent claims 91-111 and 114-120 are patentable at least by virtue of their direct or indirect dependency from claim 90.

In regard to claim 121, Grubsky *et al.* fail to teach a flexible material shaped as a sheet. Grubsky *et al.* also fail to teach or imply a flexible material which comprises one or more components designed and configured to allow emission of the light through at least a portion of the surface wherein the component(s) is sensitive to temperature, moisture, and/or electromagnetic field such that a change in ambient temperature, moisture and/or electromagnetic field results in a change in a color or intensity of light emitted from the surface.

It is therefore submitted that claim 121 is patentable over Grubsky *et al.* because Alacron lacks at least two limitations of claim 121, either singly or in combination.

***New Claims***

New claim 125 includes all the limitations of previously presented claim 108 as well as all the limitations of its base and intervening claims. New claim 126 depends from claim 125 and includes the limitation that variations in a color of the light results in variations in the predetermined pattern.

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Previously presented claim 108 was rejected under 35 U.S.C. § 102(b) and 35 U.S.C. § 102(e) as being anticipated by Alarcon and Grubsky *et al.*, respectively.

Regarding Alarcon, the Examiner states that the voids are considered as layers and that they form a pattern according to Figure 3 of Alarcon.

Applicant respectfully disagrees with the Examiner assertion that the voids can be considered as layers. Alarcon specifically describes, in multiple places throughout his disclosure, that the voids are cylindrical holes within the bougie. It is correct that a layer can have a cylindrical shape (see, *e.g.*, the cylindrical clad of Muto *et al.*), but a hole, which is a bulk of air, is by no means a layer. Perhaps the Examiner is considering the cross section IV--IV of Alarcon's Figure 3 as a layer, but this does not anticipate or render claim 125 obvious because each of the layers in claim 125 is required to have a different refractive index, which is certainly not the case in Alarcon since the cross section IV--IV includes the same elastomer material as the entire bougie.

Regarding Grubsky *et al.*, the Examiner states that Grubsky *et al.* disclose a pattern as claimed. However, the examiner has not established any prima facie case of anticipation for the pattern. It is noted that the Examiner states that the diffractive optical element 24 of Grubsky *et al.* is inherently capable of performing the functions specified by claims 109-110, 112, 114-121 and 124. While respectfully traversing this statement, Applicant notes that this statement excludes claim 108.

It is therefore submitted that none of Muto *et al.*, Alacron and Grubsky *et al.* anticipate or render new claims 125 and 126 obvious because none of these references teaches a flexible waveguide which comprises a flexible material with a first layer having a first refractive index, and a second layer being in contact with the first layer and having a second refractive index being larger that the first refractive index, wherein a first portion of the light is emitted through a predetermined pattern on the surface of the flexible waveguide and a second portion of the light is emitted through the end of the flexible waveguide.

Additionally, none of Muto *et al.*, Alacron and Grubsky *et al.* teaches a flexible material which comprises at least one component designed and configured to allow the emission of the light through the predetermined pattern, wherein the component(s) is selected such that variations in a color of the light results in variations in the predetermined pattern.

In view of the above amendments and remarks it is respectfully submitted that the claims are now in condition for allowance. A prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

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***Enclosures:***

- Petition for Extension (1 Month);
- Additional Claim Transmittal;
- Formal Drawings Transmittal; and
- Replacement Drawings.